

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-17 (Cancelled).

18. (Currently Amended) A method as recited in claim 20 ~~claim 16~~, wherein the neighboring channel is a channel adjacent to the channel.

19. (Currently Amended) A method ~~as recited in claim 13~~, for amplifying sound signals in a multi-band sound processing system, said method comprising:

receiving a signal level estimate for a channel signal corresponding to a particular frequency band of a sound signal; and

determining a suitable gain amount for the channel signal based on the signal level estimate,

wherein, when the signal level estimate has a high level, the suitable gain amount is constrained to preserve spectrum contrast across frequency bands, thereby preserving speech clarity and intelligibility, and

wherein said determining comprises:

producing an initial gain amount for the channel signal;

comparing the signal level estimate for the channel signal to a first threshold amount and a second threshold amount;

producing the suitable gain amount as the initial gain amount when said comparing determines that the signal level estimate is less than the first threshold amount;

constraining the initial gain amount to a first extent and then producing the suitable gain amount as a first constrained initial gain amount when said comparing determines that the signal level estimate is greater than the first threshold amount and less than the second threshold amount; and

constraining the initial gain amount to a second extent and then producing the suitable gain amount as a second constrained initial gain amount when said comparing determines that the signal level estimate is greater than the second threshold amount, the constraining to the second extent being more constraining than constraining to the first extent.

20. (Original) A method as recited in claim 19, wherein said constraining operates to average the initial gain amount for the channel signal with at least one other gain amount associated with a neighboring channel.

21. (Original) A method as recited in claim 20, wherein the average operation is weighted average.

22. (Original) A method as recited in claim 19,

wherein said constraining to the first extent operates to average the initial gain amount for the channel signal with at least one other gain amount associated with a neighboring channel, and

wherein said constraining to the second extent operates to average the initial gain amount for the channel signal with a plurality of other gain amounts associated with neighboring channels, the number of other gain amounts being greater by at least one more than that used with said constraining to the first extent.

23. (Original) A method as recited in claim 22, wherein the average operation is weighted average.

24. (Currently Amended) A method for amplifying sound signals in a multi-band sound processing system, said method comprising:

receiving a signal level estimate for a channel signal corresponding to a particular frequency band of a sound signal; and

determining a suitable gain amount for the channel signal based on the signal level estimate,

wherein, when the signal level estimate has a high level, the suitable gain amount is constrained to limit variation of gain difference across frequency bands, thereby preserving speech clarity and intelligibility, and wherein, when the signal level estimate does not have a high level, the suitable gain amount is not constrained, and

wherein said determining comprises:

producing an initial gain amount for the channel signal;

comparing the signal level estimate for the channel signal to a first threshold amount and a second threshold amount;

producing the suitable gain amount as the initial gain amount when said comparing determines that the signal level estimate is less than the first threshold amount;

constraining the initial gain amount to a first extent and then producing the suitable gain amount as a first constrained initial gain amount when said comparing determines that the signal level estimate is greater than the first threshold amount and less than the second threshold amount; and

constraining the initial gain amount to a second extent and then producing the suitable gain amount as a second constrained initial gain amount when said comparing determines that the signal level estimate is greater than the second threshold amount, the constraining to the second extent being more constraining than constraining to the first extent.

25. (Original) A method as recited in claim 24, wherein said method further comprises:

filtering a sound signal to obtain a plurality of channel signals, including the channel signal.

26. (Cancelled).

27. (Cancelled).

28. (Currently Amended) A system for amplifying sound signals in a multi-band sound processing system, said system comprising:

a microphone to convert a sound pressure signal into an electronic sound signal;
and

a signal processing unit operatively connected to said microphone, said signal processing unit operates to filter the electronic sound signal to obtain channel signals for at least two channels with different frequency bands, receive a signal level estimate for each of the channel signals, and determine a suitable gain amount for each of the channel signals based on the signal level estimate corresponding to each of the channel signals,

wherein, when the signal level estimate has a high level, the suitable gain is constrained to preserve spectrum contrast across frequency bands, and

wherein, for each of the channel signals, in determining the suitable gain amount, said signal processing unit operates to: produce an initial gain amount for the channel signal; compare the signal level estimate for the channel signal to a first threshold amount and a second threshold amount; produce the suitable gain amount as the initial gain amount when the signal level estimate is less than the first threshold amount; constrain the initial gain amount to a first extent and then producing the suitable gain amount as a first constrained initial gain amount when the signal level estimate is greater than the first threshold amount and less than the second threshold amount; and constrain the initial gain amount to a second extent and then producing the suitable gain amount as a second constrained initial gain amount when the signal level estimate is greater than the second threshold amount, the constraining to the second extent being more constraining than constraining to the first extent.

29. (Currently Amended) A system for amplifying sound signals in a multi-band sound processing system, said system comprising:

a microphone to convert a sound pressure signal into an electronic sound signal;
and

a signal processing unit operatively connected to said microphone, said signal processing unit operates to filter the electronic sound signal to obtain channel signals for at least two channels with different frequency bands, receive a signal level estimate for each of the channel signals, and determine a suitable gain amount for each of the channel signals based on the signal level estimate corresponding to each of the channel signals,

wherein, when the signal level estimate has a high level, the suitable gain amount is constrained to limit variation of gain difference across frequency bands, and wherein, when the signal level estimate does not have a high level, the suitable gain amount is not constrained, and

wherein, for each of the channel signals, in determining the suitable gain amount, said signal processing unit operates to: produce an initial gain amount for the channel signal; compare the signal level estimate for the channel signal to a first threshold amount and a second threshold amount; produce the suitable gain amount as the initial gain amount when the signal level estimate is less than the first threshold amount; constrain the initial gain amount to a first extent and then producing the suitable gain amount as a first constrained initial gain amount when the signal level estimate is greater than the first threshold amount and less than the second threshold amount; and constrain the initial gain amount to a second extent and then producing the suitable gain amount as a second constrained initial gain amount when the signal level estimate is greater than the second threshold amount, the constraining to the second extent being more constraining than constraining to the first extent.

Claims 30-35 (Cancelled).